



# An experimental demonstration that fear, but not disgust, is associated with return of fear in phobias

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## Abstract

It has been suggested that disgust, rather than anxiety, may be important in some phobias. Correlational studies have been ambiguous, indicating either that disgust increases phobic anxiety or that phobic anxiety potentiates disgust. In the experimental study reported here, disgust and phobic anxiety were manipulated in the context of habituation to phobic stimuli. Spider fearful participants were randomly allocated to conditions in which neutral, disgusting, and phobic anxiety provoking stimuli were introduced into a video-based spider phobic habituation sequence. Exposure to the phobic stimulus resulted in a return of self-reported fear and disgust levels. However, exposure to disgusting stimulus increased disgust levels, but not anxiety levels. Results are most consistent with the hypothesis that fear enhances the disgust response in phobias, but that disgust alone does not enhance the fear response. Previously observed links between disgust and spider phobia may be a consequence of fear enhancing disgust.

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## 1. Introduction

The leading theory in specific phobias remains Mowrer's two-process theory, which sought to explain the resistance of phobic responding to extinction as a consequence of natural repetition. Mowrer (1947) suggested that phobic fears are acquired through classical conditioning, which fails to extinguish because of the development of avoidance responses. Such avoidance is in turn maintained by operant conditioning, specifically negative reinforcement contingent on the avoidance and escape responses characteristic of phobias.

More recently, the clinical observation that some phobics report high levels of disgust associated with exposure to phobic stimuli (e.g., in vomit phobia and some small animal phobias such as rats) led some to question the role of anxiety and suggest that disgust may be the primary emotion. These ideas were linked to the potential evolutionary significance of disgust in disease avoidance (Matchett & Davey, 1991). It is suggested that risk of disease or contamination, rather than threat of physical danger, leads humans to experience "phobic disgust" in the presence of particular harmless animals. The adaptive significance of the disgust response may be the prevention of contact with objects that might transmit infection or disease (Rozin & Fallon, 1987). Such an evolutionary perspective also suggests that disgust being resistant to extinction would have a protective function. This is because the occurrence of disease transmission operates on a protracted time scale, making the perception of contingent relationships between a source of infection and actual infection very unlikely.

Initial research focussed on the issue of the *association* between disgust sensitivity and phobic responding. Disgust sensitivity has been found to correlate with fear of certain types of animal in a study carried out on non-phobic participants by Matchett and Davey (1991). Mulkens, De Jong, and Merckelbach (1996), using a behavioural test (reluctance to eat a biscuit over which a spider had crawled) found that spider phobics have higher disgust sensitivity than non-phobics. However, it has been suggested (Thorpe & Salkovskis, 1998) that avoidance of the biscuit may have been due to an amplification of the normal disgust response caused by its association with the phobic object rather than a specifically causal link between disgust sensitivity and phobic responding. Spider fear in non-phobic participants, as measured by the Spider Phobia Questionnaire, was found to be associated with scores on the Animal subscale of the Rozin Disgust Sensitivity Scale, and with scores on the Disgust Questionnaire (De Jong & Merckelbach, 1998).

Other studies suggest a less prominent role for disgust in specific phobias. Thorpe and Salkovskis (1998) found little evidence for disgust as a causal or maintaining factor in specific phobias, with the disgust associated with the phobic object appearing to have different constituents to the disgust associated with non-phobic objects. Mulkens et al. (1996) found that spider phobics did not differ from non-phobics in behavioural tasks testing general repugnance to dirty objects rather than spider-related repugnance, so that there was no evidence of differences

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